

13. (Amended) A method of fabricating a security door comprising:

forming a metal door frame to define a pair of hollow upright stile frame members and upper and lower hollow transverse rail frame members so that each of said frame members has an inner face with an attachment flange projecting therefrom and forming security bar receiving apertures in all of said frame members so that said security bar receiving apertures are located [defined] in said inner faces of said frame members,

5 [positioning] assembling a plurality of metal security bars [relative to] with said hollow frame members so that the ends of said security bars project through said security bar receiving apertures and into said hollow frame members and so that said security bars pass over and reside in contact with said attachment flanges, and

10 spot welding said security bars to said attachment flanges so as to permanently secure said security bars to said metal door frame.

14. (Amended) A method according to Claim 13 further comprising roll forming said metal door frame from a single elongated strip of sheet metal and cutting miter cuts [indentations] into said strip to form mitered corners between adjacent frame members.

REMARKS

Drawing Objections

In the Official Action the Examiner objected to the drawings stating that the reference character "32" had been used to designate both the longitudinal edge and the sheet metal strip. The Examiner also stated that the reference character "38" had been used to designate both an indentation and a pair of miter cuts. Applicant respectfully requests reconsideration of the

drawing objection.

In the drawings the reference character "32" refers to the sheet metal strip in all drawing figures. Applicant has amended the specification at page 12, line 2 to correct a typographical error in which the longitudinal edge should have been designated by the reference number "34". Also, the reference number "38" was sometimes referred to in the specification as "indentations" and sometimes as "miter cuts". However, all of these references refer to the same structure "38" in the drawings. Accordingly, Applicant has amended the specification to substitute the term "miter cuts" for "indentations" so that the specification is consistent throughout. All references in the specification now refer to the structure labeled "38" in the drawing as "miter cuts".

35 U.S.C. § 112 Rejections

The Examiner also rejected Claims 2-6, 8-12, and 13 under 35 U.S.C. § 112 as being indefinite. The Examiner referred to specific passages in Claims 2, 3, 8 and 11 as being exemplary. Applicant has amended the claims to alter the passages which the Examiner found objectionable and has reworded other claims as well. Applicant respectfully requests reconsideration of the rejection of claims under 35 U.S.C. § 112.

It is believed that all of the claims are clear and are not indefinite. Referring to elements shown in the drawing figures, Claim 1 claims a method of fabricating a metal security door 10 having a frame 12 formed with a pair of hollow upright stile members 14 and 16, upper and lower transverse rail members 22 and 24 extending between the stile members 14 and 16, and security bars 26 and 28. The security bars 26 and 28 are required to extend between at least

some of the stile members 14 and 16 and rail members 22 and 24. The improvement of the invention comprises spot welding the security bars 26 and 28 to at least some of the stile members 14 and 16 and rail members 22 and 24, as illustrated in Fig. 4.

Claim 2 includes all of the limitations of Claim 1 and further requires a plurality of transverse security bars, namely the security bars 26, and a plurality of upright security bars, namely the security bars 28. Claim 2 goes on to require the stile members 14 and 16 and rail members 22 and 24 to be formed with flat, inwardly directed attachment flanges 50, shown in Figs. 3 and 4. The transverse security bars 26 are positioned to pass across the attachment flanges 50 of the stiles 14 and 16 and the upright security bars 28 are positioned to pass across the attachment flanges 50 of the rails 22 and 24, as illustrated in those drawing figures. The security bars 26 and 28 reside in contact with and are spot welded to the attachment flanges 50, as illustrated in Fig. 4.

Claim 3 includes all of the limitations of Claim 2 and further comprises forming and positioning the attachment flanges 50 in mutually coplanar relationship to each other to reside in a common plane 52, indicated in Fig. 4. Claim 3 goes on to require that the step of spot welding secures the transverse security bars 26 to the attachment flanges 50 of the stiles 14 and 16 on one side of the common plane 52, and that the step of spot welding secures the upright security bars 28 to the attachment flanges 50 of the rail members 22 and 24 on the opposite side of the common plane 52, as illustrated in Fig. 4.

Claim 4 is dependent upon Claim 2 and requires the step of first punching security bar receiving openings 42 and 42a in at least one flat sheet metal strip 32. Claim 4 also requires

cutting the flat sheet metal strip 32 to form corner securing tabs 40, thereon also as illustrated in Fig. 2. Claim 4 requires roll forming the flat sheet metal strip 32 to form the hollow stile members 14 and 16 and the rail members 22 and 24 so that at least some of the stile and rail members have pairs of the corner securing tabs 40 projecting therefrom, as illustrated in Figs. 5 and 7. Claim 4 goes on to require positioning the hollow stile and rail members 14, 16, 22, and 24 so that the frame 12 has a rectangular configuration forming four corners, as shown in Fig. 1. This is done so the transverse rail members 22 and 24 meet the upright stile members 14 and 16 with a pair of the corners securing tabs 40 at each of the corners projecting into an adjacent hollow member, as illustrated in Figs. 5 and 7.

In the implementation of the claimed method illustrated in the application drawings, the fastening tabs 40 are formed at the ends of the rail members 22 and 24. However, as explained in the specification, the miter cuts could be altered so that the corner fastening tabs 40 project from both ends of the stiles 14 and 16 instead, or from a single end of each of the stile members 14 and 16 and rail members 22 and 24 (Specification, page 17, lines 7-11).

Claim 4 requires the additional step of spot welding the pairs of corner securing tabs 40 to a hollow member adjacent thereto at each of the corners, as illustrated in Figs. 5, 6, and 7.

Claim 5 is dependent upon Claim 4 and requires all of the hollow members, i.e. the stiles 14 and 16 and the rails 22 and 24, to be formed from a single, flat sheet metal strip 32, as illustrated in Fig. 2.

Claim 6 is dependent upon Claim 5 and requires the additional step of initially cutting spot welding tip access apertures 44 in the single flat sheet metal strip 32 so as to create at least

one spot welding tip access aperture 44 in the hollow members 14, 16, 22, and 24 at each of the corners, as shown in Figs. 6 and 7. Claim 6 further requires the step of spot welding pairs of corner securing tabs 40 to the adjacent hollow members by inserting internal spot welding tips 64 into the spot welding tip apertures 44, as illustrated in Figs. 6 and 7, so as to contact the corner securing tabs 40 within the adjacent hollow members. Claim 6 further requires bringing external spot welding tips 68 and 70 into external contact with the adjacent hollow members. Electric currents are then passed between the internal spot welding tips 64 and the external spot welding tips 68 and 70 to spot weld the hollow members 14, 16, 22, and 24 together at each of the corners.

Claim 7 is an independent claim that requires the formation of four hollow door perimeter segment members, namely the stiles 14 and 16 and the rails 22 and 24, so as to define a plurality of security receiving openings 42 and 42a in each of the perimeter segment members 14, 16, 22, and 24. The next step in Claim 7 is the positioning of a plurality of metal security bars 26 and 28 to project through the security bar receiving openings 42 and 42a and into the hollow perimeter segment members 14, 16, 22, and 24 so that the ends of the metal security bars 26 and 28 terminate within the perimeter segment members 14, 16, 22, and 24. Also, the perimeter segment members 14, 16, 22, and 24 are positioned together to form a rectangle as illustrated in Figs. 5 and 1. Claim 7 then requires the ends of the metal security bars 26 and 28 to be spot welded to the perimeter segment members 14, 16, 22, and 24 within which they terminate, as illustrated in Fig. 4.

Claim 8 is dependent upon Claim 7 and further comprises roll forming the hollow

segment members 14, 16, 22 and 24 so as to create a security bar attachment flange 50 on each of the hollow perimeter segment members 14, 16, 22 and 24. In this way, when the perimeter segment members 14, 16, 22 and 24 are positioned together to form the rectangle, the attachment flanges 50 all project inwardly within the rectangle and lie in a common plane 52, as illustrated in Figs. 3 and 4. The security bar receiving openings 42 in each of the perimeter segment members 22 and 24 reside proximate to the security bar attachment flange 50 thereof on one side of the common plane 52, while the security bar openings 42a in each adjacent perimeter segment members 14 and 16 lie on the opposite side of the common plate 52, as is evident in Figs. 3 and 4.

Claim 9 is dependent upon Claim 8 and further comprises forming hollow segment members 14, 16, 22 and 24 from at least one elongated sheet 32 of metal having opposing longitudinal edges 34 and 36, rolling the edges 34 and 36 together and turning one edge over the other to form the security bar attachment flanges 50, as illustrated in Figs. 3 and 4.

Claim 10 is dependent upon Claim 9 and further comprises forming all of the hollow segment members 14, 16, 22, and 24 from a single common elongated sheet 32 of metal.

Claim 11 is dependent upon Claim 7 and further comprises forming at least some of the perimeter segment members 14, 16, 22 and 24 with corner tabs 40 projecting from their ends and spot welding the corner tabs 40 to other of perimeter segment members 14, 16, 22, and 24 located adjacent thereto.

Claim 12 is dependent upon Claim 11 and further comprises cutting electrode access openings 44 at each corner of the rectangle formed by the perimeter segment members 14, 16,

22 and 24 so that there is an electrode access opening 44 at each corner of the rectangle.

Claim 12 requires internal spot welding electrodes 64 to be inserted into the electrode access openings 44 and external spot welding electrode 68 and 70 to be pressed against the perimeter segment members 14, 16, 22, and 24 to hold the corner tabs 40 in contact with the perimeter segment members located adjacent thereto. Electric current is then passed between the internal electrode 64 and the external electrode 68 and 70 to spot weld the corner tabs 40 to the perimeter segment members 14, 16, 22, or 24 located adjacent thereto at each of the corners of the rectangle.

Claim 13 is an independent claim and is directed to same subject matter, and is of comparable scope as dependent Claim 3.

Claim 14 is dependent upon Claim 13 and further requires roll forming the metal door frame 12 from a single elongated strip 32 of sheet metal and cutting miter cuts 38 into the strip 32 to form mitered corners between adjacent frame members 14, 16, 22 and 24 as illustrated in Figs. 2 and 5.

Claim 15 is dependent upon Claim 13 and is directed to the same subject matter as Claim 9.

Claim 16 is dependent upon Claim 15 and is directed to the same subject matter as Claim 12.

Claim 17 is dependent upon Claim 16 and requires sequentially spot welding each of the corner tabs 40 in each pair of corner tabs 40. That is, with reference to Fig. 6, electrical current is first passed between the electrodes 64 and 68, and then between electrodes 64 and

70.

Applicant respectfully submits that all of the claims remaining in the application meet the 35 U.S.C. § 112 requirement of particularly pointing out and distinctly claiming the subject matter of the invention.

35 U.S.C. § 103 Rejections

The Examiner rejected Claims 1 and 7 under 35 U.S.C. § 103(a) as being unpatentable over Lee, U.S. Patent No. 5,862,645 in view of Bruhnke, et al, U.S. Patent No. 4,470,717.

Applicant respectfully requests reconsideration of this basis for rejection.

As noted by the Examiner, Lee does indeed teach a method of fabricating a metal security door frame comprising the steps of forming four hollow segments 122 having a plurality of receiving openings 1221 and placing a plurality of security bars 13, 14 within the receiving openings 1221 to form a complete security frame. Bruhnke, et al, on the other hand, is not directed to the field of security door fabrication, but rather to a rib seam arrangement for sheet metal parts. The field of the Bruhnke et al patent is the fabrication of manufacturing vehicle roof rain channels (Bruhnke, et al, column 1, lines 23-25). Specifically, Bruhnke discloses in Fig. 4 a spot weld web seam for thin walled sheet metal parts 1 and 2 which includes a triple layer web 3 projecting from a surface of the joined parts 1 and 2. The joining of the folded back over portion of the flange 6 to the flange 4 is accomplished by a series of spot welds 7 (Bruhnke et al, column 4, lines 23-29).

There is no disclosure or suggestion to one of ordinary skill in the art of metal security door manufacture having the Lee and Bruhnke, et al references before him that would lead

such a person to spot weld the security bars 13 and 14 to the metal inner frame 122 of Lee using the attachment method of spot welding, taught in Bruhke, et al. Indeed, it would be impossible to spot weld the security bars 13 or 14 to the frame 122 of Lee since there is no flat surface contact between the security bars 13 and 14 and any surface of the metal inner frame 122. This is of critical importance so that the parts can be spot welded together as recognized by Applicant in the Specification of the present application, (page 3, lines 15-18). In order for two metals to be spot welded together it is imperative that there be flat surface contact between some portion of those members so that electrodes can be positioned on opposite sides of them and an electrical current passed between the electrodes. The step of spot welding the security bars 13 and 14 to at least some of the stile and rail members of the inner frame 122 shown in Lee would be physically impossible due to the absence of any flat surface contact between these members.

Furthermore, the teaching of Bruhke, et al is directed to the spot welding of thin walled sheet metal parts, such as the parts 1 and 2 shown (Bruhnke et al, column 4, lines 10 and 11). In contrast, Applicant's invention requires spot welding security bars, which are relatively thick as shown both in the Lee reference and in drawing Figures 3 and 4 of the present application. As a consequence, there is no disclosure in the combination of Lee with Bruhnke et al that would teach one how to spot weld the security bars 13 and 14 to the frame 122 of Lee.

In the case of W. L. Gore and Associates, Inc. v. Garlock, Inc., 220 USPQ 303 (CAFC 1983). The Court of Appeals for the Federal Circuit held:

"There must have been something present in teachings in references to suggest to one skilled in art that claimed invention before court would have been obvious."

As held in the case of In re Geiger, 2 USPQ 2d 1276 (CAFC 1987):

"Obviousness cannot be established by combining teachings of prior art to produce claimed invention, absent, some teaching, suggestion, or incentive supporting combination, and thus, although it might have been obvious to one skilled in art to try various combinations of teachings of three prior art references to achieve claimed method, such evidence does not establish prima facie case of obviousness."

The Examiner also rejected Claims 2 and 13 under 35 U.S. § 103(a) as being unpatentable over Lee in view of Bruhnke, et al and further in view of Goldsmith, U.S. Patent No. 2,568,140. The Examiner acknowledges that the Lee/Bruhnke, et al combination does not teach the formation of a flange member with which security bars reside in contact. The Examiner relies upon the Goldsmith teaching, which is directed to a shelf construction for stoves, storage cabinets and household refrigerators (column 1, lines 1-5) to supply this teaching. The structure of Goldsmith shows crossbars 10 extending to a frame 11 having a flange member 19 (Goldsmith, Fig. 4). As shown in Figs. 4, 5 and 6, and as explained in the specification of Goldsmith from column 2, line 37 to column 3, line 8, the ends of the crossbars 10 are inserted into the frame 11 between the stop ledge 18 and the lower flange 19. The stop ledge 18 includes a rib 17 that engages a corresponding groove 18 in crossbar 10. The lower flange 19 is then bent up to cause the upper and lower flanges 18 and 19 of frame

11 to grip the ends of the crossbars 10 (column 2, line 55 to column 3, line 4). Goldsmith teaches that this grip precludes any looseness or "play" during the entire life of the shelf (column 3, lines 4-8).

Goldsmith teaches a method of attaching bars to a frame that is a complete alternative to and inconsistent with the spot welding method claimed by Applicant. Thus, there is no reason apparent from the references as to why or how the Goldsmith reference should or could be utilized in combination with the Bruhnke et al reference. Furthermore, from the three references, Lee, Bruhnke, et all, and Goldsmith, there is no teaching or suggestion to one of ordinary skill in the art that the security bars 13 and 14 should or could be spot welded to the frame 122 of Lee. Quite to the contrary, Goldsmith suggests that they can be crimped in place. Bruhnke et al does not explain how members having no face-to-face contact, such as the security bars 13 and 14 and the frame 122 of Lee could possibly be spot welded together. Thus, the combination of Goldsmith with Lee and Bruhnke, et al actually teaches away from Applicant's invention.

As held by the Patent Office Board of Appeals in Ex parte Harris, 94 USPQ 282 (BPA&I 1952):

"Modification of references would be contrary to purposes of prior structures and also could be made only in light of applicant's teachings; therefore, modification is not proper basis for rejection of claims."

As held in Ex Parte Jackson, 146 USPQ 409 (1964):

"Claims are not rejected as unobvious over primary reference in view of

secondary reference where to so modify device of primary reference would destroy its structural identity and mode of operation"

As held in Ex Parte Rosenfeld, 130 USPQ 113 (1961):

"References are improperly combined inasmuch as Examiner's proposed modification of one reference is directly contrary to specific limitation in reference and would render device of reference unsatisfactory for its intended purpose; one skilled in art would not modify such device to make it unsuitable for its intended purpose".

The Examiner rejected Claims 4, 5, 11, 14 and 15 under 35 U.S.C. § 103(a) as being unpatentable over the references as applied to Claims 2 and 13 further in view of the Stern patent, U.S. Patent No. 5,018,263. However, the combination of Stern with the other references does not disclose or suggest the step of spot welding the security bars to at least some of the stile and rail members because that combination of references still fails to disclose any fact-to-face contact between the security bars and a window or door frame.

If one were to substitute the metal frame construction disclosed by the Stern patent for that disclosed by Lee, the inner frame 122 of Lee would have the cross-sectional configuration illustrated at Fig. 5 in the Stern patent. This would include a turned over fold 14 which is crimped over the edge of fold 16 (Stern, column 4, lines 5-11). Furthermore, Stern teaches that epoxy 33 is applied to the inside surface of fold 14 which is then crimped over the edge of fold 16. Thus, Stern utilizes a combination of crimping and glue to secure the folds 14 and 16 together. This teaching is directly contrary to the teaching of Bruhnke, et al which utilizes

spot welds 7 to attach two comparable folds together. There is therefore no reason to combine Stern with Bruhnke, et al since these two references contain contradictory teachings for joining together thin walled sheet metal parts. That is, two such parts could be brought together and crimped and glued as shown in Stern or spot welded together as taught in Bruhnke, et al. There would be no reason to do both or to substitute the spot welding of Bruhnke, et al for the crimping and gluing technique taught in Stern.

As held in In re Shaffer, 108 USPQ 326 (CCPA 1956):

"References were improperly combined since there is no suggestion in either of them that they can be combined to produce applicant's result."

Moreover, if one were to make the substitution, there is still no teaching in any of the references that would lead one to spot weld the metal bars 13 and 14 to any portion of the frame 122 of Lee. Rather, both Stern and Bruhnke, et al teach methods of securing longitudinal edges of thin walled sheet metal parts together. Arguably Bruhnke et al teaches the substitution of spot welding in order to fasten the edge margins 14 and 16 shown in Fig. 1 of the Stern patent together. However, neither reference discloses or suggests the method of securing bars to a rectangular frame using any method alternative to that depicted in Lee.

As held by the Court of Appeals for the Federal Circuit in In Re Sernaker, 217 USPQ 1 (CAFC 1983):

"Lesson of In re Imperator, 179 USPQ 730, is that prior art references in combination do not make invention obvious unless something in prior art references would suggest advantage to be derived from their combined teachings."

None of the references relied upon for the rejection of any of the claims suggests the advantages of reduction of time and skill required to secure rectilinear grillwork in a security door frame. Such a result and advantage is found only in the teachings of the specification of the present application (page 3, line 7-11).

The Examiner rejected Claims 6, 12, 16 and 17 under 35 U.S.C. § 103(a) as being unpatentable over the foregoing references and further in view of Janotik et al, U.S. Patent No. 5,549,352. As disclosed in Fig. 7 of that reference an elongated aperture 186 is defined through a wall of the structural member 182 to provide access for spot welding guns. Spot welding is used to secure the base walls 176 and side walls 178 to the flaps 184 and the side walls of the member 182 (column 7, lines 9-11 and 15-17). However, the Janotik reference is directed to a field completely different from that of Applicant's invention. Specifically, the Janotik method is directed to frame structures for automotive vehicles (column 1, lines 12-14). The Court of Appeals for the Federal Circuit has provided guidance as to just how far afield references can be if relied upon as a basis for rejecting or invalidating claims.

As held in Heidelberger Druckmaschinen AG v. Hantscho Commercial Products Inc., 30 USPQ2d 1377 (CAFC 1994):

"References which are not within field of inventor's endeavor are considered "analogous art" which may be relied upon in patentability determinations if person of ordinary skill would reasonably have consulted those references and applied their teachings in seeking solution to problem that inventor was trying to solve; whether reference is "analogous art" is question of fact, and is part of analysis of

scope and content of prior art."

Applicant respectfully submits that a person of ordinary skill in the art of designing security doors would not reasonably be expected to look to the field of automotive vehicle frame construction for guidance in constructing a security door. Furthermore, even if Janotik et al is combined with the Lee, Bruhnke et al, Goldsmith, and Stern references, there is still no disclosure whatsoever in the Janotik, et al reference that would lead one to spot weld the security bars 13 and 14 to the frame 122 of the Lee reference. This is an essential feature of all of the claims of the application, including dependent Claims 6, 12, 16 and 17.

Applicant notes that in the Official Action the Examiner indicated that Claims 3 and 8-10 would be allowable if re-written to overcome the rejections of 35 U.S.C. § 112. However, for the reasons previously set forth herein all of the remaining claims presently pending in the application are allowable over the prior art as well.

Applicant believe that all the claims have been amended so as to avoid any basis for rejection under either 35 U.S.C. § 112, second paragraph or 35 U.S.C. § 103(a). Accordingly, Applicant respectfully requests reconsideration of all rejections of claims and passage of the application to issue in due course.

Pursuant to 37 C.F.R. § 1.136(a) Applicant hereby petitions for acceptance of this response in the above identified application within one month following the due date of May 15, 2000. Pursuant to 37 C.F.R. § 1.17(a) Applicant encloses herewith a check in the amount of \$55.00 to cover the delayed response fee due from a small entity for a paper filed within one month of the due date. Please charge any underpayment or credit any overpayment of fees in

this connection to Patent Office Deposit Account No. 032035.

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